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IN TWO SECTIONS

Section I

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IN THIS ISSUE

Expense Control at Varying Volumes of Sales and Production, by S. A. Peck 711

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EDITORIAL DEPARTMENT NOTE

The principle of variable budgeting is best known and most commonly practiced in connection with the control of manufacturing expenses through the flexible budget. But the fundamentals upon which the flexible overhead budget are based are just as applicable to other areas of cost and expense control and in time we may expect that most budgets will be constructed on the principle of measuring actual results against those budgeted for the actual volume experience instead of against a forecasted objective. The techniques for this type of budgeting have been available for some time and are being applied in many companies. The article in this issue of the *Bulletin* provides a clear exposition of these techniques and the way in which they can be applied to attain real variable budgeting for the business as a whole.

The author of this article, S. A. Peck, is not a new contributor to the *N. A. C. A. Bulletin*. Articles by him appeared in the issues for December 15, 1938 and January 1, 1940. The fact that these issues are already out of print indicates the interest shown in his articles. A graduate of Purdue University with the B.S. degree in Mechanical Engineering in 1914, Mr. Peck secured his early business experience with the Diamond Chain & Mfg. Co. as Factory Cost Accountant and later Factory Manager. This connection was interrupted from 1917 to 1919, during the War, when he served overseas as Captain of the 150th Field Artillery, but continued upon Mr. Peck's return from abroad, until 1922. For the next seven years he served as Time Study Chief, Purchasing Agent, Production Engineer and Production Manager for the Real Silk Hosiery Mills, The Van Dorn Iron Works, and the Columbus Handle & Tool Co. In 1929, Mr. Peck joined the Trundle Engineering Co., and is now serving as Vice President in charge of the Chicago office of that firm. In addition to his membership in N. A. C. A., he is a member of the American Management Association and the Society for the Advancement of Management.

Articles published in the *Bulletin* present many different viewpoints. In publishing them the Association is not sponsoring the views expressed, but is endeavoring to provide for its members material which will be helpful and stimulating. Constructive comments are welcomed and will be published in the Forum Section of the *Bulletin*.

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MARCH 1 1941

EXPENSE CONTROL AT VARYING VOLUMES OF SALES AND PRODUCTION

By S. A. Peck, Vice-President,
Trundle Engineering Co., Chicago, Ill.

IT IS with some trepidation that I approach this subject, because modern accounting practice is already so replete with published material dealing with the subject of budgetary control that my contribution may seem like "carrying coal to Newcastle."

My situation is somewhat like that of the salesman who was trying to sell a farmer a book that explained how to double his crops, the weight of his hogs and the milk yield of his herd. "Young man," drawled the farmer, after listening to a long harangue, "Ain't no use tryin' to sell me that book. I ain't farmin' now, half as good as I know how!"

Principles of Budgetary Control

I am going to assume at the outset that the principles of budgetary control are accepted and understood, that we appreciate its value and importance for good business operation; its requirements of a planned program of sales, production, inventories, capital betterments, etc.; and its dependence upon an adequate system of reports; further, that we understand its purpose, are convinced of its necessity, and that management has the determination to make it a practical tool of control.

As I said before, this field has been most adequately covered by the many talks and publications that have come to your attention. Therefore, I am merely attempting to explain some of the application techniques which have been developed in budgetary control, that make it a practical tool for the managements of large and small enterprises.

Theory of Variable Budgeting

The theory of variable budgeting proposes that control must be directly related to activity, in other words, that results must be measured against actual performance rather than against objectives. This calls for a nice distinction between a budget and a forecast. I assure you they are not the same, although many executives think of them synonymously.

A *forecast* is a "look forward" with objectives or programs determined by projection, judgment or plain every-day wishful thinking.

A budget is a measurement of what was accomplished against a predetermined standard. And remember, standards can be set only for performance—not for expectations.

I know it is difficult, when one is forecasting (I still claim it is forecasting) for next year's program in a business, to mentally draw this distinction, but if we agree that the special significance of budgeting I am discussing is strictly defined by the expression "variable budgeting," we will leave the definition of forecasting to someone else to worry about.

Variable budgeting does not need much explanation to readers of the *N. A. C. A. Bulletin,* but to keep the record clear, a review of its principles will be helpful. It is concerned only with:

a. *Current fiscal periods.* These may be a day, a week, a month, or (I hope not!) a year. Any period longer than a month makes the effect of budgetary control nil.

b. *Current activity.* This may be sales, for measuring commercial expense, or direct labor for measuring factory expense. Direct labor may be expressed in dollars, hours, tonnage or quantity. Other refinements for activity measurement are possible in the sub-divisions of the business, and can also be used as an activity basis, depending upon the discretionary value of such detail.

c. *Prompt reporting of results.* This means that whether the fiscal period used is a day or a month—the record of budget efficiency must be in the hands of management promptly. If a daily control is exercised, the results of each day must be on the desks of those responsible early the next day. If monthly control is exercised, and especially in small companies, good organization and planning of the clerical work should place the budget statements in the hands of management within seven working days following the period's closing date. This may seem like super-speed, but I assure you that many companies actually do it without unduly straining the organization and routines. In fact I know of two companies that get their statements out within five working days following the closing date.

Mechanics of Budget Application

Turning to the mechanics of application, a few simple techniques have been developed in recent years that make budget applications more of a science and less an art than it used to be. First, there has been the conception and development of the fixed and variable expense relationships that exist in every enterprise. The traditional accounting viewpoint considered an expenditure fixed, only when the ledgers showed a uniform charge to an account over a continuous succession of fiscal periods. The modern viewpoint presumes that every expenditure has a fixed content when it does not vary directly and entirely with the activity that creates it.

Naturally (and obviously), depreciation, taxes, insurance, dues and similar expenses are fixed, because they are expense functions dependent entirely on time and the necessity of "being in business." They may fluctuate by reason of changes in the basic structure of the business or discretionary changes in management policy, but they do not vary ordinarily with changes in the business activity. Exceptions to this rule, such as a usage application of depreciation, are too rare to be considered.

But what about supervision, indirect labor, heat, light and power, office salaries and similar classifications? They seem to be constant and appear merely to fluctuate during various periods of operation. But are they really constant? A great many of them are not and, by a simple analysis I will explain later, show the very definite, hybrid characteristic of being partly fixed and partly variable.

This brings us to the question—what is a variable expenditure? A variable expenditure, which may be either an expense or a direct cost, is one that varies directly with the activity causing it. For example, direct labor ordinarily is a true variable based upon units produced, because at zero operation direct labor is zero, and increases continuously and uniformly with production. Direct material is another true variable, and varies directly with the direct labor input to the plant. The actual fact that it may not merely reveals a bad operating condition, such as waste, requisition error or faulty accounting control, or some rare exception in processing technique that is peculiar to the enterprise.

Some expenses are true variables also, such as indirect labor. And again a distinction must be drawn between indirect labor which serves direct labor, such as truckers, set-up men, etc., and non-productive or expense labor which serves the enterprise itself, such as watchmen, janitors, millwrights, etc. Supplies and small tools are usually considered true variables, depending upon their definition in the business requiring them.

The hybrid expenses I mentioned earlier, those that are partly fixed and partly variable, require special consideration, as they bulk large in any system of expense control, and are the ones we are largely concerned with in this discussion. Keeping in mind the basic definitions, these semi-fixed expenses comprise two elements of measure, time and activity. To illustrate the point, an account like "Purchased Power" will consist of a standby or connected load charge, which is a monthly fixed expense based upon a time interval, and a consumption charge consisting of kilowatts used, which is a variable expense based upon activity. Your domestic gas or light bill is a good illustration of a semi-fixed expense.

Analysis of Expense

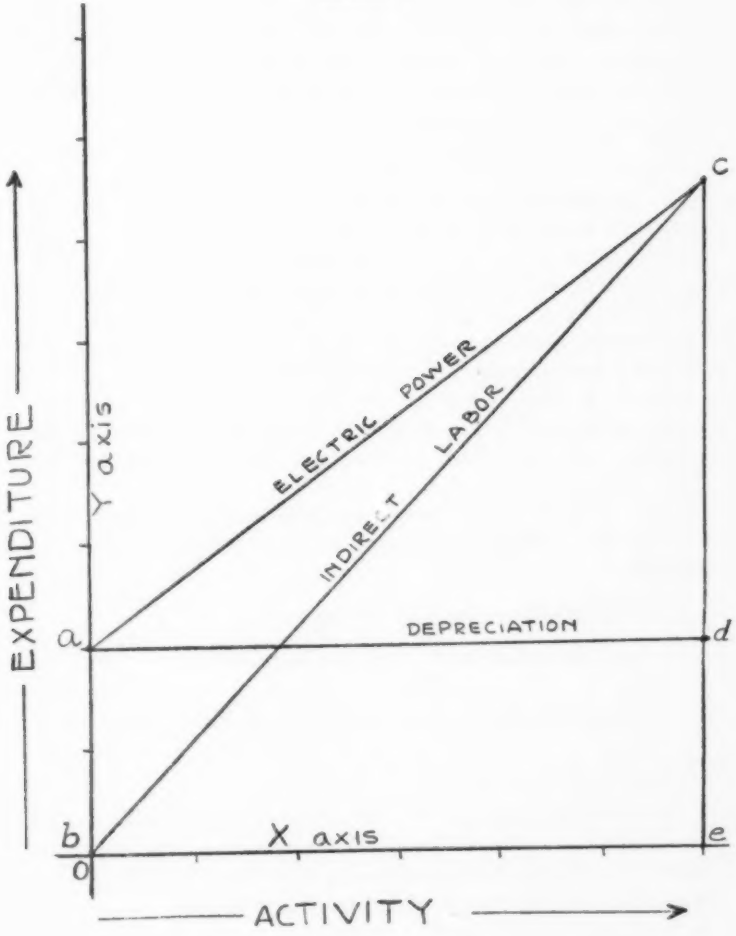
With these understandings in mind, the practical question arises as to how the characteristics of an expense can be determined. There are two ways: (1) a trial-and-error method which is a composite of experience, perception and comparison, and (2) a precise and scientific way which analyzes experience and mathematically resolves the relationship. This latter way is the only one that has any adequacy and is one I am developing here as the foundation for expense control at varying volumes.

There are two methods of accomplishing this: one, purely mathematical, involving the cumbersome equation of least squares; the other, the graphic method which is just as accurate and certainly a lot easier to understand and apply. The graphic method of expense analysis, being the most practicable, is the backbone of expense control, and the one I will attempt to develop.

Graphic Analysis

Exhibit 1 shows the basic graphic relationships between an expenditure and its parent activity. Those of you who have been

EXHIBIT 1


EXPENDITURE
Y axis
ELECTRIC POWER
INDIRECT LABOR
DEPRECIATION
a
b
c
d
e
0
X axis
ACTIVITY

exposed to higher mathematics will doubtless recognize the classic X- and Y-axis quadrant of analytical geometry.

The horizontal (or X axis) measures activity from zero to the right and can represent dollars, units, employees or any other activity effort of a business. The vertical (or Y axis) measures expenditure from zero upwards, and although usually in dollars, could just as well represent quantity, or people, depending on what relationship was being analyzed.

The lines "ac", "bc" and "ad" are the "relationship" lines between values for activity and expenditure. Thus, line "ad" tells us that no matter what value is selected in the activity range, the expenditure value is the same, as measured on the vertical scale. It is a fixed expense. But line "bc" uniformly increases from zero as activity increases, indicating a variable relationship between the two axes. Line "ac" shows a semi-fixed relationship, because at zero activity it shows a residual expenditure, and thereafter increases proportionately as activity increases.

This is all very elementary to many of you, I suppose, but a review of the ABC's may be helpful, and in this case develops the formulae and the graphic relationships used in establishing expense control.

Thus, if the X axis becomes direct labor dollars and the Y axis becomes cost dollars, the expense control formulae become, for example:

$$\text{Depreciation} = \$\ ab \text{ (constantly)}$$

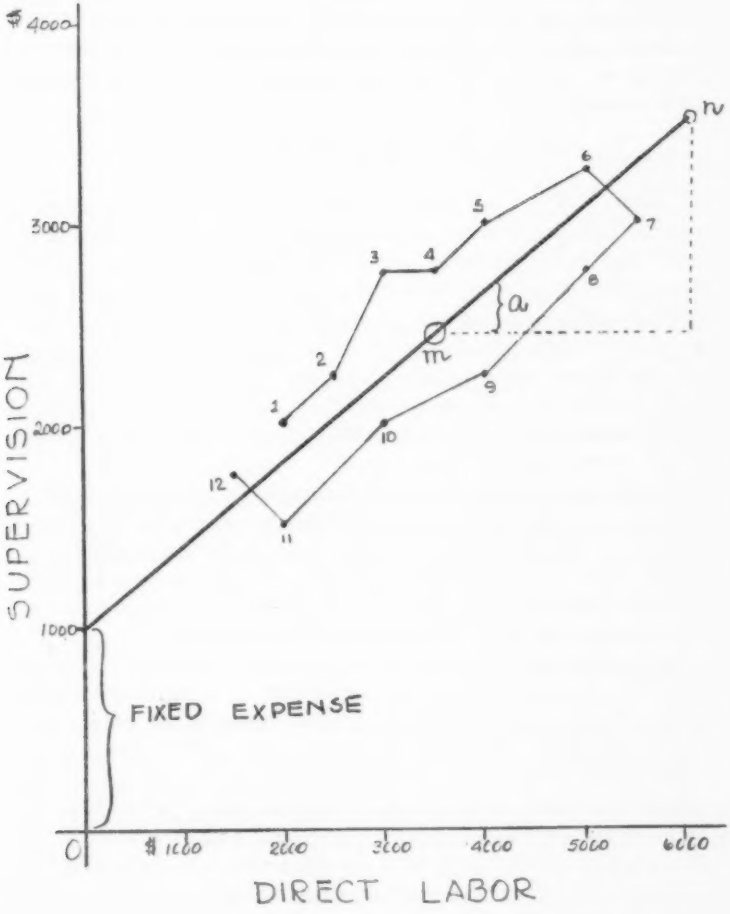
$$\text{Indirect Labor} = \$\ \frac{ce}{be} \times \$ \text{ direct labor}$$

$$\text{Electric Power} = \$\ ab + \$\ \frac{cd}{be} \times \$ \text{ direct labor}$$

Mechanics of Determination

The next step leads into the method of graphic analysis so that the formulae can be determined. Exhibit 2 is based upon an assumed twelve-months experience in direct labor payroll and corresponding expenditures for the supervision account. Each point is numbered for the month it represents, and is connected by a light line with the succeeding point showing the experience path the account has taken.

EXHIBIT 2


$ 4000
3000
2000
1000
0
SUPERVISION
FIXED EXPENSE
$ 1000
2000
3000
4000
5000
6000
DIRECT LABOR
1
2
3
4
5
6
7
8
9
10
11
12
a
m
n

The problem, first, is to find the best line going through the pattern of points. The best line will, of course, be the one passing closest to all the points in the pattern, and will naturally pass through a point that is the average of all the points. On the chart, this is shown by the large open point "m." Next, the slope of the best line passing through the average point must be determined. This is the tricky part of the whole procedure, and requires the use of a formula:

$$a \text{ (which is the slope of the line)} = \frac{\Sigma (xy)}{\Sigma (x^2)}$$

in which "Σx" is the algebraic sum of the distances of all the points from the average point measured on the horizontal axis, and "Σy" is the algebraic sum of the distances of all the points from the average point measured on the vertical axis. I said "algebraic sum" because points to the left and/or below the average point will have a minus value in the formula. For example, using the significant numbers, point one has an "x" value of minus 15, and a "y" value of minus 5; point 3 an "x" value of minus 5 and a "y" value of plus 2½; and point 5 an "x" value of plus 5, and a "y" value of plus 5.

On the chart shown, these calculations have been made, and the slope of the best line through "m" is found to be 0.83. The equation for a straight line is $y = ax$, in which "a" is its slope, and which we have just found to be 0.83. So all we need to do is assume a value for "x", say 25, and solve for "y" which gives us point "n" on the chart. Then a line is drawn through "m" and "n", as shown on the chart, and the result is the "best line." This all sounds very mathematical and complicated, I know, but it really is not. On the many budget installations where this method is used, the mechanics of the above procedure are readily picked up by clerks with very inferior mathematical education, with just a few minutes practice. Using a year's experience for the analysis of each account, the average clerk can make five account analyses an hour, which means that if there are 100 accounts in the accounting controls, a whole year's operation can be analyzed within three days, assuming, of course, that the charts have been kept up during the year.

You may well ask the reason for all this precise mathematics on

figures that in themselves are frequently arbitrarily assigned to an account. My answer is that in variable budgeting the formulae used must have no errors of judgment in them; otherwise the budgetary control will not correctly measure performance against standard. The experience used may indeed be very bad, but that error should not be compounded by the addition of judgment error in analysis.

You might also question all the fussy mathematics when the line could be drawn just as easily by sight. True, it can in this case, because I have purposely selected an ideal pattern of experience, but if you ever try this out on your own actual expense experience, you will find patterns of points that can't be resolved any other way than the one just described.

Selecting the Variable Budget Line

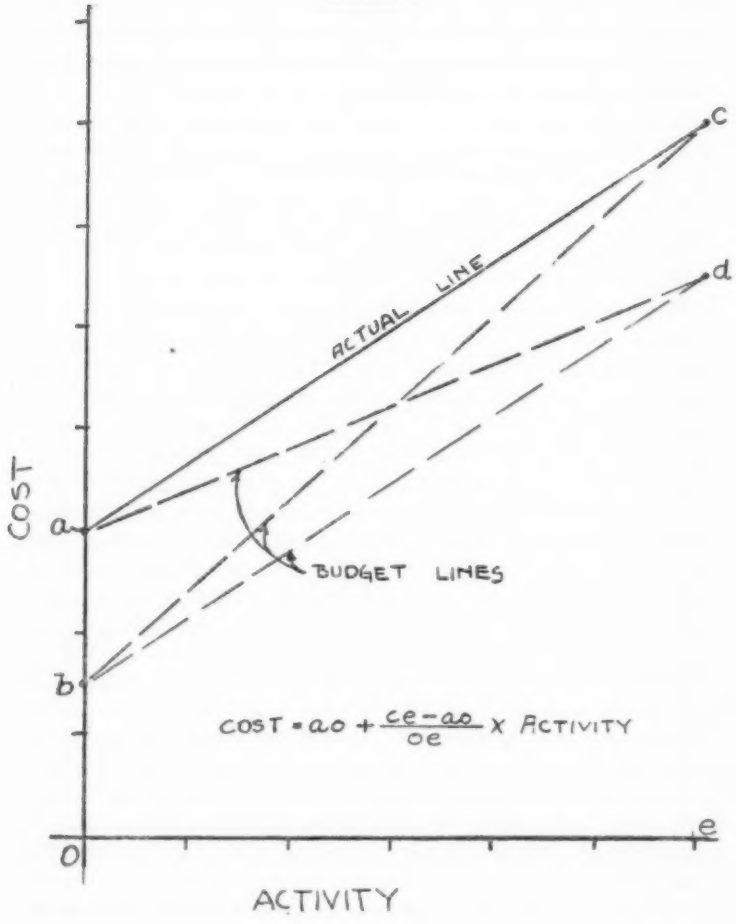
If you will now look at Exhibit 3, the practical application of your mathematics "semester" will be clear. Line "ac" is the one just determined by actual experience in Exhibit 2. Where should the budget line be? Shall the line be made to come down faster, or should it merely be lowered? In other words, shall the reduction be made in the fixed or variable part of the expense?

It all depends on the character of the expense. Suppose the line "ac" represented purchased electric power. Obviously, the standby or demand charge cannot be lowered (except by new contracts with the power company or changes in the plant layout and equipment) so economies would have to be effected in the kilowatt consumption alone. Therefore, a budget line might be selected, as illustrated on the chart by "ad"—the same fixed but a lower rate of variable cost.

If line "ac" represented the supervision account, it might be decided that low volumes did not warrant the current elaborate salaried organization, and the budget line would be set as "bc" by reducing the fixed content of the expense but raising the variable, so that at high volume adequate supervision would be provided for operation.

Finally, if line "ac" represented the sales salary account, it might be found that the fixed expense could be lowered by eliminating certain sales executives, but that the variable rate of expense would have to remain the same. Line "bd" then would be the

EXHIBIT 3


c
d
ACTUAL LINE
COST
a
BUDGET LINES
b
COST = ao + ce − ao / oe × ACTIVITY
e
0
ACTIVITY

budget line selected, which would bring the whole expense into a lower level of amount for any volume.

In actual practice, the budget line selected will also be influenced by the actual points on the chart. Obviously, any line selected must pass through some of the points of experience; otherwise the budget manager will lay his budget open to a serious attack from the standpoint of practicability by the man who must operate under it. In rare cases, due to a change in technique, equipment or rates, the line can disregard the experience entirely, but it is always expedient in setting a budget to be able to show a department head that he has at some previous time actually operated within the budget rate.

Setting up the Variable Expense Budget

We are now ready to set up the variable budget. Exhibit 4 shows a highly simplified example of a small enterprise, with the high volume equal to double the low volume. As you will note, the factory expense budget is computed upon direct labor and general expenses upon net sales.

Taking up the first account, indirect labor, the budget is found by multiplying the direct labor ($5,000) by the variable expense factor of 25 per cent, and adding to this result the fixed expense of $700, which equals $1,950. Similarly, the other factory expense accounts are computed as shown.

The general expense accounts are computed in like manner, except that net sales is the base used for converting the budget formula into the budget amount. In actual practice, all these accounts are broken down into the detail that corresponds to the actual accounting control.

After the budget amounts are figured, the actual expense is entered against the corresponding budget account and the over-or under-budget variance figured. Unless there is a very good reason for it, it is preferable to use over and under columns, rather than a single column with red or black entries, not only to simplify the mechanical preparation of the budget reports, but also, more important still, to make the budget simple and understandable to department heads in the factory, when the overall budget is broken down departmentally. Red and black figures are confusing to a shop foreman and should be avoided if at all possible.

GENERAL EXPENSE IS BASED UPON NET SALES
FACTORY " " " " DIRECT LABOR

MONTHLY LOW VOLUME

	Budget			Actual	Variance	
Acct Name	Fixed	Variable	Total	Total	over	under
DIRECT LABOR		10. %		$ 5,000.		
NET SALES		100.		50,000.		
MFG. EXPENSE						
Indir. Labor	$ 700.	25.	$ 1950	1,900		$ 50
" Mat.	300.	15.	1050	1,000		50
" Exp.	500.	10.	1000	1,200	$ 200	
Total	1500	50	4000	4,100	100	
GEN. EXPENSE						
Selling	500	4.	2500	2600	100	
Admin	1000	1.	1500	1400		100
Total	1500	5.	4000	4000		
GRAND TOTAL	3000		8000	8100	100	

MONTHLY HIGH VOLUME

DIRECT LABOR			$ 10,000		
NET SALES			100,000		
MFG. EXPENSE					
Indir. Labor		$ 3200	2,900		300
" Mat	same	1800	1,900	100	
" Exp		1500	1,800	300	
Total		6500	6,600	100	
	formulae				
Selling		4500	4,700	200	
Admin		2000	1,800		200
Total		6,500	6,500		
GRAND TOTAL		13,000	13,100	100	

EXHIBIT 4

Referring again to Exhibit 4, it will be noted that on high volume the same formula will apply to the larger direct labor and net sales bases. The budgets clearly indicate that when activity is doubled, expenses do not necessarily double too. For example, at $50,000 volume total expense is budgeted at $8,000, and at $100,000 volume total expense is budgeted at $13,000. In other words, a 100 per cent increase in volume provides only 62½ per cent increase in expense.

As I have pointed out in other articles on this subject, the field of operating profit lies in this expense differential for varying volumes above the break-even point. That is why expense control plays a vital part in a business, and why it must be adequate in its scope and method of application. It profits business but little to figure gross margins and potential volumes unless there is a realistic knowledge of where the break-even point lies. Too many concerns determine this point from historical accounting experience and accept it as an unchangeable fact not greatly affected by pricing policy, cost reductions or the fixed cost of being in business.

A change in fixed expense materially alters the break-even point if the variable expenses remain constant. It is very easy for a business to add a clerk here and a clerk there, to provide a larger advertising budget, or to project a more extensive research and development program, without realizing that it is materially changing the location of the break-even point in its sales or production volume.

The break-even point has other management aspects that are important from a budgetary control standpoint. First of all, the break-even point should not be too close to normal operating capacities, because of the small profit attainable. Back of this statement are the equally important considerations of plant operation itself. A break-even point that lies close to normal capacity gives a business a very small factor of safety on profits, and gives management a constant marketing headache in its struggle to maintain the essential volume.

The break-even point should never exceed 75 per cent of the normal sales or production volume. The satisfactory and safe proportion is between 50 and 60 per cent for sound expense control.

Another important consideration of the break-even point is its relation to inventory costs. If the normal expense overhead can be set at this point, low-cost inventory is manufactured, and the unabsorbed overhead variance that usually excites management into criticism of the operating control can be eliminated.

Procedural Application of Expense Control

The procedural techniques of expense control are important in the successful application of a budget. As was mentioned earlier, errors of judgment must be minimized as much as possible. It is the present practice to maintain currently the same type of charts used in this talk for every account carried in the factory and general ledgers.

These charts are laid out on standard 8½ x 11 graph paper, with horizontal and vertical scales selected that will cover the possible range of values used and yet throw the line diagonally through the sheet. Back of each chart sheet, which carries the account number and name, is a data sheet showing account number and name, the budget formula, the definition of the account, the distribution of the charges and, if desired, the values used in plotting the chart.

At the beginning of the year the budget line is laid on the chart, and each month's actual experience is plotted on the chart. As the year proceeds, the pattern of experience is developed, showing how closely the control is operating, and at the same time developing the trend for the determination of next year's budget. Such charts will appear similar to Exhibit 2 which was described earlier.

In some plants the entire control is exercised by such charts, which are blueprinted each month and given to the various department heads. This practice makes it unnecessary to figure and type the budget schedules, and is certainly the most simple and effective presentation that can be made.

However, if the organization is not chart-minded (and very few are) the budget schedules must be prepared in the conventional form and the charts merely become the working tools of the budget manager.

Case Examples

At the risk of boring many of you, I have confined this article to some very technical and limited principles and procedure. How-

ever, figures are interesting, and to show you how greatly the end results of budgetary control vary in actual application, I am going to summarize some of the fixed and variable components of cost I have had occasion to observe in various companies. For obvious reasons I shall have to omit the names of the companies, but I have chosen six typical companies for illustration, as indicated on Exhibit 5. All of the figures have been reduced to a monthly basis and rounded off to simplify their presentation.

Although some interesting conclusions might be drawn from these figures, the only two that can be safely drawn are:

1. The variable costs in a healthy business will range between 70 and 80 per cent of the sales dollar, regardless of size.
2. The fixed expenses are related both to size and character of a business and are particularly affected by the amount of hand versus mechanized manufacture used in processing.

If we take the variable spread which is termed "Marginal Income" and divide it into the fixed expense, the resulting figure will be the sales volume break-even point. Let us do that with the examples shown:

Company A shows a break-even point of $24,200. We may conclude that pretty strict budgeting is required in this small business, or it can quickly go into the red.

Company B shows a break-even point of $45,000 and is therefore not much better off than Company A.

Company C shows a break-even point of $110,000, and we can conclude it is in a pretty bad way, with actual sales running at $85,000. However, by a strict budget control of general expense, the company was actually able to reduce the fixed general expense to $9,000 and the variable general expense to 12 per cent (this was in the sales commission plan), and operate at a break-even volume of $75,000. They are maintaining a very strict expense control at varying volumes, you can be sure.

Company D shows a break-even point of $100,000. Needless to say, this company is extremely profitable, and its budget control is carried on to guarantee the continuity of its high earnings.

MONTHLY BASIS

Company	A	B	C	D	E	F
Product	Wood Furn.	Sani. Ware	Auto. Heaters	Paper Mill	Elec. Motors	Gaso. Engines
(R) NET SALES $	31,500	63,000	85,000	200,000	300,000	600,000
(B) DIRECT LABOR (R)%	16.	20.	12.	7.	15.	12.
DIRECT MAT (R)%	48	39.	42.	47.	34.	51.
FIXED MFG EXP $	3,700	4,500	9,000	20,000	42,000	54,000
VAR MFG EXP (R)%	10.	6	10.	17.	12.	12.
FIXED GEN EXP $	2,600	5,000	12,000	7,000	38,000	69,000
VAR GEN EXP (R)%	-	14.	17.	2.	8.	2.
TOTAL FIXED $	6,300	9,500	21,000	27,000	80,000	123,000
TOTAL VARIABLE %	74.	79.	81.	73.	69.	77.
SPREAD = "Marginal Income" %	26.	21.	19.	27.	31.	23.
BREAK-EVEN VOLUME $	24,200	45,000	110,000	100,000	258,000	535,000

EXHIBIT 5

Company E shows a break-even point of $258,000. In order to make a satisfactory profit, the fixed general expense was considerably reduced by organization changes and placed under a rigid control.

Company F shows a break-even point of $535,000. In this case both the manufacturing and general fixed expense were reduced by closing up surplus facilities, the volume was increased by securing special contracts, and the entire operation was placed under a detailed plan of expense control for varying volumes.

In closing, I would like to emphasize the need for discrimination in applying the control described to a company's operation. If top management is "figure-minded" and not "chart-minded," the budget man must "hide his light under a bushel" and use his charts merely to implement his own judgment and budget determinations. If top management is chart-minded, the job is easier, but the subordinate organization may have to be sold on the utility of the presentation, trained to understand it, and given the facility to effectuate the required results.

If everyone in the organization is chart-minded—no, I'll skip that one! It is so rare a case that the chances are 100 to 1 of it applying to your particular operation. If this miracle does apply, however, I would say that you have a rare opportunity to do a real job of scientific and practical expense control.

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COOL ENOUGH FOR GOLF

Courses within easy distance of the city over beautiful parkways.

WARM ENOUGH FOR THE BEACH

The unexcelled south shore—or down the Jersey coast—up the Sound if you don't care for the surf —and deep sea fishing too.

RIGHT FOR THE THEATER

The best season in years—see your favorites on Broadway—Make an evening of it, dine at a famous restaurant, night club afterward.

AND VERY EASY ON THE BUDGET

For old-fashioned New York clings to the 5¢ fare, has excellent low-price restaurants, keeps its hotel rates as low as any American city.

BUILD YOUR VACATION AROUND

THE

TWENTY-SECOND INTERNATIONAL COST CONFERENCE OF N.A.C.A.

June 23rd, 24th, 25th, & 26th

WALDORF-ASTORIA HOTEL

NEW YORK CITY

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N. A. C. A. BULLETIN

Vol. XXII, No. 13 March 1, 1941

IN TWO SECTIONS

Section II

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NATIONAL ASSOCIATION OF COST ACCOUNTANTS · 1919 · NACA

FORUM SECTION

Amendment to Constitution

Convention News

This Bulletin is published semi-monthly by the
National Association of Cost Accountants,
385 Madison Avenue, New York City

To an angler

"MICKEY FINN"

means a lure

• The "Mickey Finn" is a "streamer" fly made from red-and-yellow-dyed hair, and is supposed to imitate a minnow. Although frowned upon by dry-fly purists, the "Mickey Finn" is a popular lure with trout-fishing American anglers.

To a business man,

"COMPTOMETER ECONOMY" means easier read answers for greater speed and accuracy

NO CIPHERS appear on Model M answer dials unless they are part of actual answer! The answer, for example, used to read 00000054520. Now it reads 54520.

Many executives regard the Comptometer as "the perfect adding-calculating machine." We regard it only as *the most nearly perfect* — especially since the latest improvement in the Model M Cushioned-Touch Comptometer —

— which *eliminates all ciphers on the answer dial to the left of the actual answer.* In reading answers, eye travel is limited to the length of the answer, instead of extended the full width of the machine. The result is *less eye-strain and nerve-strain . . . less likelihood of error . . . greater speed and accuracy . . . increased efficiency and economy.*

This improvement, like the Controlled-Key safeguard which *eliminates operating errors* due to faulty manipulation of keys, is exclusive with the Comptometer. It is one more reason why Comptometer machines and methods handle *more figure work in less time at lower cost.*

For a demonstration of "Comptometer Economy" on your own work, telephone your local representative. Or write to Felt & Tarrant Mfg. Co., 1715 N. Paulina St., Chicago, Ill.

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N.A.C.A. ACTIVITIES
AND THE MEN IN CHARGE

This is the fifth in a series of articles devoted to a description of the several departments through which N.A.C.A. activities are directed. Each month one of the directors in charge of a department describes the work of his department and its relation to the other activities which make up N.A.C.A. This section of the Bulletin has been instituted in order that members might become better acquainted with the way in which these departments operate and at the same time come to know better the men in charge. This month, John H. DeVitt provides an interesting and important statement with respect to membership and the policies of the Membership Department.

THE DEPARTMENT OF MEMBERSHIP

Any discussion of the Department of Membership is an easy and yet difficult task; easy because of the wealth of subject matter to discuss; difficult because no amount of discussion could embrace the implications and ramifications of the subject. The strength of any association is its membership. Membership in an association such as ours cannot be a static affair. Every day of every month, applications for membership flow into our headquarters in New York from all parts of the United States and in fact from all parts of the world. Our foreign membership has always been a fascinating feature of our growth and even the international conflict has not stopped it. The majority of the applications have been sponsored by chapters but an impressive number come to us from outside chapter territory, showing conclusively that the influence and service of the Association extend far beyond the relatively narrow limits of those cities and countries which have chapter affiliations. One of the pleasant tasks of the director of membership is to examine these applications to see that the prospective member's qualifications meet the eligibility rules of the Association. While the membership eligibility rules of a technical and professional association such as ours must necessarily set certain high standards, they are deliberately designed to be on the liberal side. For example, they cannot be so strictly interpreted that the democracy of opportunity is denied those men who have a sincere and inquisitive interest in the science of industrial accounting but whose formal education has been less than more fortunate men. In addition, they are so designed that a man's present position does not form an automatic barrier from that knowledge and assistance which the Association can give which will help him assume more important responsibilities. We are an educational association engaged in a cooperative effort to make practical contributions to American business and industry. The denial of this opportunity

by over-zealous eligibility emphasis on present positions and academic background to men who can participate in these contributions would limit the potential value of the Association to its members and stultify its avowed purposes. In short, the maintenance of the intellectual and physical virility of our Association requires that we continue to attract not only the men who are outstanding in the field but those men who may at some time in the future move into positions of larger responsibilities.

On the other hand, there is no room in the Association for the man who uses or tries to use the Association for his own personal gain. Nor is the Association open to those men who obviously do not have either the interest, the experience or the background required and who cannot be brought within the area of the requirements that have been outlined. The rights and privileges of our present membership must be protected against the intrusion of less qualified and less sincere men.

This naturally leads to the matter of "quality" membership. This is an expression which has been used widely but which has not been defined as accurately as it should be. I am afraid that in some cases it has even been used as an alibi for the failure to secure any membership, but it nevertheless has a definite place in our plan. We want quality membership but quality is not based upon a man's age, education or present position. The true test of quality is a sincere interest in the science of industrial accounting. We have in our membership today many men who joined the Association twenty years ago while they occupied positions of minor importance but who today are important executives in their companies. The quality we want in our new members is sincere interest and a true appreciation of the benefits which may be derived through association with and the exchange of ideas with other men who are equally sincere.

Obviously the maintenance of these objectives presents membership problems. They are for the most part solved by the chapters themselves as the major share of new membership applications are created through the efforts and interest of the various chapters. The chapter officers and directors pass on these applications and either accept or reject them. This autonomous action by the chapters has the immediate effect of minimizing the possibility of undesirable members. The men in the applicant's own community who, after all, are best equipped to pass on the applicant's qualifications, have the first and most important decision. If the applicant passes this exacting scrutiny, his application is forwarded to National Headquarters for the consideration of the Director in charge of Membership. The National Director presents his recommendations to the National Board of Directors and they may agree or disagree with the recommendations submitted. In any event, action by the National Board is necessary to elect the applicant to membership in the Association.

It occasionally happens that a chapter may be enthusiastically expanding and is not as selective as it should be in its desire for new members. In this event the National Board may raise a question in regard to the eligibility of the applicant. In such cases the applications are referred back to the

local board of directors for their further consideration and the record shows that mutually satisfactory decisions have been obtained in every case.

The man who holds the portfolio of National Director in charge of Membership has the privilege of seeing the growth of the Association reflected in panoramic glimpses of the ambitions of men. The desire to learn, the opportunity for service, the burning urge for self-expression, are all part of the colorful picture. It is a fascinating spectacle and it has its romantic side.

Here is an application on my desk from a young man who is just starting on a career and who realizes that he needs inspiration from other men who are further along in his chosen field. Here is another man, the chief financial officer of a huge industrial enterprise, who has lived long enough to know that he now has an obligation to devote some of his time, his experience and his talents to the profession which has done so much for him—and who also knows that he is not too old to learn. Here is one bearing the mark of a far-off country from a man who has been isolated, who has not had the intellectual stimulation of new ideas and who believes that our Association can supply that need. Perhaps we are unwittingly and indirectly being a medium of promoting international goodwill.

And so these new members become associated with us. Every one of them contributing and maintaining this Association which but a few short years ago was nothing more than an idea and which today with its membership of nearly 10,000 interested and sincere men and women is making an ever increasing contribution to its members in many diversified ways.

The influence of our Association has been a constructive and vital force in many ways not only in our chapter communities but throughout the entire world. It has been created because men have recognized that individual effort must be supplemented by association with one another so that their thoughts may be pooled for the common good. And all because members of our group have been unselfish enough to give some of their time and effort so that other men may share in the benefits that are available

It is an inspiring thought!

JOHN H. DEVITT,
National Director in charge of Membership.

JOHN H. DE VITT

National Director in charge of Membership

Jack DeVitt is a Buckeye who moved from Ohio to Erie, Pa., at the beginning of his high school days and has made Erie his residence ever since. Trained in accounting with the Walton School of Chicago, he began his business career as a laboratory assistant with the Hammermill Paper Co. in 1922, but was soon promoted to the Engineering Department where his interest in the use and control of plant investment had a chance for expression. He began his accounting career with his transfer to the Auditing Department in 1925 and for several years served his company as Assistant Auditor. His host of friends in N.A.C.A. will be pleased to know of his recent appointment as Director of the Budget for Hammermill.

A man of many talents, our Director of Membership has given generously of his time and ability in the interests of N.A.C.A. Joining the Association in 1928, he served his Chapter as Director of Publicity for two years, then as Vice President for two years and in 1933-34 as President, when the Erie Chapter won the Stevenson Trophy. His election to the National Board followed in 1934. In addition to his several talks before chapters, his address before the 1936 Convention at Cincinnati, his leadership of a group discussion on depreciation at last year's Convention, his assistance in the planning and presentation of the entertainment programs at recent convention banquets and his frequent appearances as a song leader, Jack has contributed significantly to the continued growth and development of N.A.C.A. in recent years as head of the Department of Member Attendance for the period from 1936 to 1939 and as head of the Department of Membership for the last two years.

Amendment to the By-Laws

When compulsory military service was established, the question immediately arose as to what action the Association should take in regard to those members who were called into service. The National Board appointed a special committee to investigate the matter and they reported with certain recommendations but also with the statement that under the existing By-Laws the Board did not have authority to act. The matter was accordingly referred to the National Director in charge of Constitution, and he drafted an amendment to the By-Laws giving the Board general authority to take such action as might seem desirable in regard to members called into military service and in other similar circumstances.

This proposed amendment has the unanimous approval of the National Board as required by the Constitution and will become effective May 1, 1941.

In accordance with Article VI, Section 4 of the Constitution of the Association, due notice having been properly given and the amendment having been approved by a majority of the National Board, the Board announces the following amendment to the By-Laws of the Association, which shall become effective sixty days from the date of this publication:

"Article II, Section 8 (new section)—Power to Waive—The Board of Directors of the Association, at its discretion, may cancel or waive payment of any dues, assessments or other indebtedness of a member of any class for any period."

OUR OPEN FORUM

This section of the Bulletin is available to all for the informal discussion of technical matters of interest to our members. Included here will be comments on articles in Section I, ideas and suggestions arising out of these articles, and other correspondence in which our members are likely to be interested. The ideas expressed will be those of the individual correspondents, and all shades of opinion will be welcomed to the extent that the ideas expressed are constructive and of general interest.

Author's Correction

Editor, N.A.C.A. Bulletin:

A member of N.A.C.A. has just called my attention to an inadvertent mistake which appears in my article "Unit Functional Analysis of Distribution Costs," which was published in the *Bulletin* of January 15, 1941.

On page 546, the table which shows relative profit by hundredweight derived from the three classes of customers served at the warehouse should read as follows:

Customer Class	*Net Profit Per Cwt.*
1	$.15
2	.197
3	.194

In calculating profit per cwt. for classes 2 and 3, I evidently divided, not the net profit, but the distribution cost for each class shown in Schedule 3 by the number of cwt. sold to each class.

The remarks which follow this table and carry over to page 547 must then be read, in the light of this correction, as follows:

> "Class 2 is most profitable, Class 3 next, and Class 1 is third. Thus we see that the smallest orders yield the least profit and the largest and next to largest the most. It is perhaps unusual that the next to largest orders yield slightly more profit than do the largest.
>
> "On the basis of these schedules, we find that discounts could be granted:
>
> "1. To those who buy at the warehouse in preference to those who buy through salesmen; difference in cost is due to method of sale.
>
> "2. To Customer Class numbers 2 and 3 at the warehouse in preference to the other classes; difference is due to difference in cost of handling orders."

Lewis E. Rossiter,
St. Louis Chapter.

QUESTIONS AND ANSWERS

The Research and Service Department at National Headquarters conducts a Question and Answer Service for the benefit of N.A.C.A. members. Practical accounting questions which cannot be answered from our research files are submitted to a number of our members for answer. The replies with names deleted are transmitted to the original inquirer. In this section of the Bulletin will be published such of these questions and answers as appear to be of general interest to our members and worthy of their consideration.

Burden Rate on Bench Work

Question: We should like to get the views of the manufacturers of medium-sized machinery in regard to burden rates on purely "bench" work where no machinery, tools, or power are required and very little in the way of small tools, floor area, etc. The work consists chiefly of hand assembling, filing, and inspection. We wish to know if our rate, which approximates 100 per cent of direct labor, is comparable with the rates of similar work in other manufacturing establishments.

Answer No. 1: At the time the cost system was installed in our company, a survey was made by a local accounting firm and it was decided that although the individual items of overhead varied in each department, they were compensated for by other factors, so that in view of the amount of business transacted and to make the cost and regular accounting department as simple as possible, we have been using an overhead percentage of 125 per cent which is added to the direct labor in every department. While this may seem high for bench work, in our case the small amount of bench work done would not warrant setting up a special rate for this department.

Answer No. 2: This rate of 100 per cent does not seem excessive for a jobbing plant with comparatively heavy clerical and engineering expense. The proper burden rate is determined by the plant and product. Such work could under certain circumstances be carried on at a much lower rate.

Answer No. 3: 100 per cent is too high for this class of work. We believe 35 to 50 per cent would be ample.

Answer No. 4: We use only one overhead rate in our machine production, whether it be bench work or machine operations. For this reason our rate is somewhat in excess of 100 per cent of direct labor because of the equipment depreciation as well as jigs, tools and dies. If we were to segregate our assembly work (bench work) into a separate department I believe that the overhead rate would approximate 100 per cent direct labor.

Answer No. 5: This bench work evidently is similar to some of our assembly departments. We have several small assembly lines where the only

equipment is some wooden benches, electrical screw drivers, and some meters or other apparatus for testing. On one of these assembly lines our burden rate is as low as 80 per cent and on another it is 130 per cent. It would thus seem that 100 per cent would be somewhat near right, depending upon how much equipment is necessary.

Answer No. 6: A production center in our organization, having similar characteristics to those explained in the question, has a burden rate of $.6675 per hour, which is equivalent to 102 per cent of direct labor.

Answer No. 7: In our plant, as we have machining as well as bench work to do, we segregated these charges into departments or production centers to keep machine burdens entirely separate from bench work.

Each assembly department is allocated a certain amount of floor space and bears its proper share of light, heat and administrative expenses. We went further and separated our assembly centers according to the type of work and equipment required. Instrument assembly, where the individual skill and experience of the operator is paramount, cannot be grouped with mass assemblies where semi-skilled operators using special assembly jigs, benches and even conveyors turn out masses of assemblies with a minimum of skill.

We show, therefore, quite a range of overhead rates in our assembly departments, some of which, surprisingly, are on a par with machine tool centers. On consideration we found this reasonable. Where quantity assembling is performed with a modicum of special equipment and semi-skilled labor, we found supervision ran comparatively high coupled with indirect charges for tote boys, porters, etc., to keep feeding the production line. On the other hand, in instrument assembly this indirect labor disappeared more or less and the foreman was able to spend an appreciable proportion of his time on production work.

It is pretty hard to generalize on burden rates. We use an hourly rate and as a rule do not bother figuring the ratio of overhead to labor. However, using this basis we find that in mass assembly with low labor rates and high supervision 150 per cent overhead runs about average. Where instrument or skilled assembly are concerned the ratio should be somewhat less than 100 per cent. I do not believe we ever ran much below 80 per cent on any properly constituted department.

About the 1941 Convention City

Dear NACAS and WANACAS:

You've heard about the man who "did" the Louvre Museum in 30 minutes? Whose only regret was that he could have made it in 20 if he'd worn his sneakers? Your Committee puts on its sneakers in this and the next issue of the *Bulletin* to take you on a fast tour of New York—the 1941 Convention City. There's so much to see and do—so much fun to have while you're vacationing here in June and attending the Cost Conference—that we've got to work fast.

SNEAKERS

You've probably got many things in mind which you would like to see. Radio City, the Statute of Liberty, Ellis Island, the Empire State Building, Wall Street, Times Square, Central Park, the Brooklyn Bridge, the Battery, the Bowery—you've heard of them all your life. Chances are, even if you've already seen them, the kids haven't. They're the standard sights. We'll add some that perhaps aren't so well known.

OF COURSE!

Two ferry-boat trips (price one nickel each way) are very much worth your time. The trip to Staten Island (boat leaves from the Battery—"South Ferry") takes you five miles out into New York Harbor. If you're nostalgic for the ocean, this is the next best thing, with salt air, cool breezes, and a slight, but real, roll of the deck under your feet for about two minutes. On your return trip you see the famous sky-line of Manhattan, Liberty with her torch, and get all the thrill of a traveler returning from foreign parts. Or, if you're of a strictly practical turn of mind, you at least get cooled off and relaxed. The ferry from Cortlandt Street to Weehawken is the next best bet. It takes you across the Hudson diagonally on a three-mile trip. If you go in the daytime, you may want to climb to the little park on the cliff above the Weehawken ferry house. New York looks beautiful from here. On this spot Alexander Hamilton was killed in the duel with Aaron Burr.

FERRYBOAT SERENADE

If you have your car with you, drive up to Dyckman Street and return on the West Side Elevated Highway. In the daytime, you see the Palisades, the river traffic, and the foreign boats, flocks of them, tied up here in the Hudson for the duration of the war. By June there may be something even more exciting in the way of shipping in that river, but there's never a dull moment. The George Washington Bridge is a beautiful sight, especially at night when it is strung with lights. You'll see the *Normandie* rusting at its pier when you get down to 47th Street.

THE EXOTIC SIDE

The truth is that the Lower East Side is getting less foreign year by year, as is only natural, but still has some of its old-world quality. The Italian sections hold street festivals periodically. We're not up on the Saints' Days, in whose honor the festivals are held, but you may be lucky enough to find one in full swing when you come. It's the next thing to a carnival in Venice. Chinatown is small and rather disappointing. Still it is fun to peer in windows where real bird's nest and ancient eggs are sold as food, or to pick up some good Chinese tea. Another foreign section is Yorkville, in the East 80's, where they peddle beer and German music. 125th Street is polyglot: Puerto Ricans, Spanish, Finnish et al. There are places where you could (but you probably won't) get a real Finnish steam bath and a beating with birch twigs to stir up your circulation. The Finns are notoriously hardy.

For the exotic touch without effort, you can patronize the restaurants specializing in foreign foods—Russian, Syrian, Swedish, Italian, Japanese, Chinese and French. That's an adventure in itself—and a lot cheaper than a trip around the world.

TRAINS AND PLANES

The latest unofficial statistics would show that every tenth person in the United States owns an electric train or model airplane. It's in the blood. We like to prowl about Grand Central Station and Pennsylvania Station just for the atmosphere. They're authentic "sights" too. Then just across the street from Grand Central Station there's the new Airlines Terminal, where buses leave for LaGuardia Field. Buses enter and leave at different levels; there are elevators for the buses and an escalator for the passengers and it's absolutely the last word in shiny, modern construction and layout.

All New Yorkers love to climb onto the upper deck of a Fifth Avenue bus, one bound for 133rd Street via Riverside Drive, and go for a ride. You can smoke up there and you can see a lot—fare 10 cents. By the way, all transportation is 5 cents except buses of the Fifth Avenue Coach Corporation and, of course, taxicabs. Fifth Avenue buses, wherever they run, have a 10 cent fare.

On your way back from the bus expedition, stop off at the Library at 42nd Street and Fifth Avenue. Give the stone lions your particular attention, for they are one of the institutions that make New York what it is. Inside the building, there are some interesting collections you may want to see, or, who knows? you may want to look up your family tree in the genealogical department.

The Flea Circus is safe enough; the fleas love their home and have no roving tendencies. It is in a combination penny arcade—side show on 42nd Street west of Broadway. We haven't been there, but we've met ardent flea fans. You might risk a dime.

SUNDRY

We've not said anything about Coney Island. One of us was a little dashed a few years ago to discover that his American-bound European shipmates were straining their eyes for a first glimpse, not of the Statue of Liberty, but of Coney Island. It *has* something, of course, if you love your fellow man in the mass, and like your noise and glitter in large doses. If you do, take the BMT subway out there for a nickel.

If you've never been in one you'll want to visit an Automat for lunch, and if the children are along, it's a must. When you go in, get a handful of nickels at the change counter and then make the rounds of the slot machines. The Automats are crowded, but the food is good, cheap and quick. You can't smoke, but you can wear your hat if your appetite is stronger that way.

THEATRE AND MUSIC

Most of you will want to go to the theatre while you're here. This is the best season in years, the orchids going chiefly to the musical shows. Most of the hits will still be going strong in June. There's music to be heard, too—the best in the world. In the summer the New York Philharmonic-Symphony plays outdoors in the Lewisohn Stadium. This is New York's equivalent of the Hollywood Bowl, with its "symphonies under the stars." You can go for fifty cents, or you can squander a dollar. The seats, it must be admitted, are hard, but you can rent a cushion for a dime. And you can light up either that rope you prefer to a cigar or your old coal-burning briar and just listen.

Don't miss the Radio City Music Hall (where movies are shown) even if you don't look at the picture. The interior and the famous Rockettes are worth the price of admission, not to mention the 110 piece symphony orchestra. Regular admission is cheap; if you want your seats reserved, it's about $1.65.

INTERMISSION MORE COMING

Even in sneakers we can't do the city in one heat. You get a breather here. We do hope you are beginning to get the idea—that you could have a grand vacation right in New York City even if there were no Convention to attract you here. But the 1941 International Cost Conference is going to be here. The Program Committee has its plans practically completed now and, confidentially, it looks like the best Convention ever. How about organizing a party from your own Chapter to join us in the biggest and best meeting our Association has ever had? Let's take New York over!

Yours,

THE PUBLICITY COMMITTEE.

***Mark Your Calendar!* June 23rd, 24th, 25th and 26th.**

Notes

Announcement has been made of the dates for the Fourth Annual Institute on Accounting to be held at the Ohio State University on May 16 and 17. Details of the program will be announced later.

* * * * *

During the past month ten additional reports have been issued in the Federal Trade Commission's project for the collection of the annual reports from a large number of industrial corporations operating in many of the principal industries. The industries covered by latest reports manufacture tin cans and tinware; men's, youth's and boy's clothing; paint and varnish; non-alcoholic beverages; knit goods; saws, files and hand tools; leather boots and shoes; engines, turbines, waterwheels and windmills; confectionery; and petroleum products. These Industrial Corporation Reports are available from the Federal Trade Commission, Washington, D. C.

* * * * *

One of our members is anxious to obtain a copy of the *Bulletin* for December 1, 1938, which is out of print. Anyone who wishes to offer a copy of this *Bulletin* is requested to send it to National Headquarters, 385 Madison Ave., New York, N. Y.

Notes on Current Literature

FUNDAMENTALS OF ACCOUNTING. Hiram T. Scovill and C. A. Moyer. D. C. Heath & Co.; Boston, Mass. 1940. xiii, 784 pp. $4.00.

This is an elementary text on accounting which emphasizes thoroughness in the early training of accounting students. The authors feel that "the best training in accounting for any type of business position is that which begins with a sound foundation of fundamentals supported by adequate illustrative problem material." They feel that problem work is essential to a practical comprehension of the subject and that problems are necessary in the development of thought, action and speech, "which is badly needed in our educational systems, and also in business and government." Thus the text provides an adequate supply of graded problems relating to the individual chapters as well as numerous questions for review purposes.

The authors have recognized that the average beginning student is lacking in a knowledge of office procedures and throughout the text have endeavoured to supply the background of information needed for a better understanding of the accounting processes. In their selection of areas to be covered they have tended to emphasize the everyday accounting procedures rather than the unusual ones.

In organization the text does not differ greatly from the introductory texts now in use. Only the elementary phases of partnership, corporation,

consignment and branch accounting are included, but each subject taken up is treated thoroughly and supported by problem material.

INTERNAL AUDITING. Victor Z. Brink. Ronald Press Co., 15 E. 26th St., New York, N. Y. 1941. vi, 549 pp. $4.50.

This book should be of interest both to those actually engaged in the formulation and direction of internal auditing programs, and to accounting and other executives who desire a deeper insight into, and a better understanding of, the potentialities of internal auditing as a device for the more effective control of operations.

The book provides in Part I an introductory and general background for the consideration of the subject. This section deals principally with the nature of the internal auditing function and the purposes to be served. In Part II the internal auditing program is broken down into its elements and each element given detailed consideration. Separate chapters deal with internal auditing as related to cash, receivables and investments, inventories, fixed and other assets, payables, accrued items, ownership equities, and income and expenses. There are additional chapters on the regular and special activities of the internal auditor, and on his working papers, findings and reports.

Part III of the text deals with cost considerations and conclusions and is followed by the appendices consisting of a questionnaire used by a public accounting firm to evaluate a client's internal check, a bulletin used by a public accounting firm dealing with the review of clients' methods of internal check and a bibliography of available published material on the subject.

FEDERAL TAX HANDBOOK 1940-1941. (Two Volumes.) Robert H. Montgomery. The Ronald Press Co., 15 E. 26th St., New York, N. Y. 1940. 2,331 pp. $17.50 (set).

Colonel Montgomery's Federal Tax Handbook requires no introduction to practicing accountants. The current edition deals with the most recent, controversial and complicated of the revenue acts thus far enacted, which, as the author points out, accounts for its unprecedented voluminous treatment. In the Preface Colonel Montgomery states in no uncertain terms the attitude of the accounting profession concerning this law.

The material is presented in nine sections, as follows: Part I—Income and Deductions; Part II—Methods, Bases and Rates; Part III—Income Tax Returns and Administrations; Part IV—Corporation Taxes; Part V—Miscellaneous Federal Taxes; Part VI—Income Tax on Estates and Trusts; Part VII—The Estate Tax; Part VIII—The Gift Tax; Part IX—Methods of Estate Distribution.

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CURRENT COST LITERATURE

This listing, published on the first of each month, contains all the available references to cost articles and cost material published for the most part during the past month. References are secured from periodicals received at National Headquarters, and also from the Industrial Arts Index, published by The H. W. Wilson Co., 950 University Ave., New York, N. Y.

To secure a copy of any of the publications here referred to, order direct from the publisher. Addresses of periodicals referred to will be found at the end of the references listed.

ACCOUNTING AND ACCOUNTANCY

Ritchie, Ralph G. *Comparative-Spread (Strip) Accounting.* Pathfinder Service Bulletin. January, 1941, pp. 4-6.

"Strip" forms provide a modern technique for the growing need to analyze; types of application possible.

AUDITORS AND AUDITING

Neuwirth, Benjamin. *Organization of Audit Working Papers.* Journal of Accountancy. February, 1941, pp. 123-32.

Scope, content and form of audit working papers from functional point of view; practical suggestions on indexing and filing working papers.

AUTOMOBILES

Lott, Merrill R. *How Much for Automobile Operating Costs?* American Business. February, 1941, pp. 24-26.

How to check costs; summary of costs; formula for operating costs for cars for salesmen and executives.

BANKS AND BANKING

Martin, Frederick. *Bank Examinations by Public Accountants.* L. R. B. & M. Journal. January, 1941, pp. 1-11.

Directors' examinations; savings banks examinations; public accountants' works; trust department; foreign exchange department, etc.

CONSTRUCTION

Mann, P. E. *Contract Cost Accounts.* The Cost Accountant. December, 1940, pp. 80-84.

Materials; plant in use for contracts; overheads; valuation for work in progress.

NATIONAL DEFENSE
AGAINST FIGURE ERRORS
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In this column will be found timely data useful to all Cost Accountants

MARCHANT METHOD

Invoicing—with trade discount and Internal Audit of calculating and transcribing

Modern calculating practice requires examination of routines to determine whether all possible means are taken to secure a proof of accuracy, even at the expense of slightly longer expenditure of time for the complete cycle of calculating and transcribing results.

EXAMPLE: Given shipping ticket with regular typed data below:

Quan.	Item	Unit Price	Am't	Disc't	Net
6	A	8.30	*49.80*	25%	*37.35*
18	B	9.45	*170.10*	32%	*115.67*

To find amounts in italics and prepare invoice:

Use Marchant CR-8M with orange decimals at "O", white decimals KBD 2, MD 9. Billing machine alongside and jointly operated.

(1) Set up 8.30 and multiply by 6.

(2) Copy 49.80 from Marchant to shipping ticket.

(3) Turn to billing machine and type.
  (a) "6" from Marchant dials
  (b) Description from shipping ticket
  (c) "8.30" from Marchant dials

(4) Turn to Marchant.
  Set up 49.80, Clear-Return Upper and Middle Dials, multiply by "1" and reverse multiply by .25

(5) Copy 37.35 from Marchant to shipping ticket.

(6) Turn to billing machine and type.
  (a) 49.80 from Marchant dial
  (b) 25% (complement in dial)
  (c) 37.35 from Marchant dial

Subsequent *visual* comparison of finished invoice, with shipping ticket, proves complete calculation, as well as transcription of the complete invoice.

DAIRY AND DAIRY PRODUCTS

Dairy Industry Accounting. New York Certified Public Accountant. January, 1941, pp. 262-73.

"Milk Distributors' Problems in Accounting for Inventories and Route Accounts Receivable" by Louis H. Sherman. "The Milk Problems in Relation to Costs of Distribution" by Harry L. Camp. Group discussion.

FACTORIES

Zimmerman, F. K. *This Small Plant Knows Its Costs.* Factory Management & Maintenance. February, 1941, pp. 60-61.

An extremely simple, but effective cost system operated by one clerk.

MANAGEMENT

Goldman, L. *Management Policies by Industries.* Bankers Monthly. January, 1941, pp. 14-17.

Jewelers—manufacturers, wholesalers and retailers.

Shanks, E. H. *Your Business and Defense.* American Business. January, 1941, pp. 11-13.

MINING AND METALLURGY

Carson, Edward G. *Inventories of Nonferrous Metal Mines, Smelters and Refineries.* New York Certified Public Accountant. January, 1941, pp. 251-61.

Physical control and tests; valuation of metallic inventories; unrefined materials at smelters and refineries; refined materials.

OFFICE—COSTS

Measuring Office Production Qualitatively and Quantitatively. NOMA Forum. February, 1941, pp. 15-29.

A series of discussional papers.

OVERHEAD

Patton, D. R. *Distribution and Control of Manufacturing Expense.* Cost and Management. January, 1941, pp. 361-71.

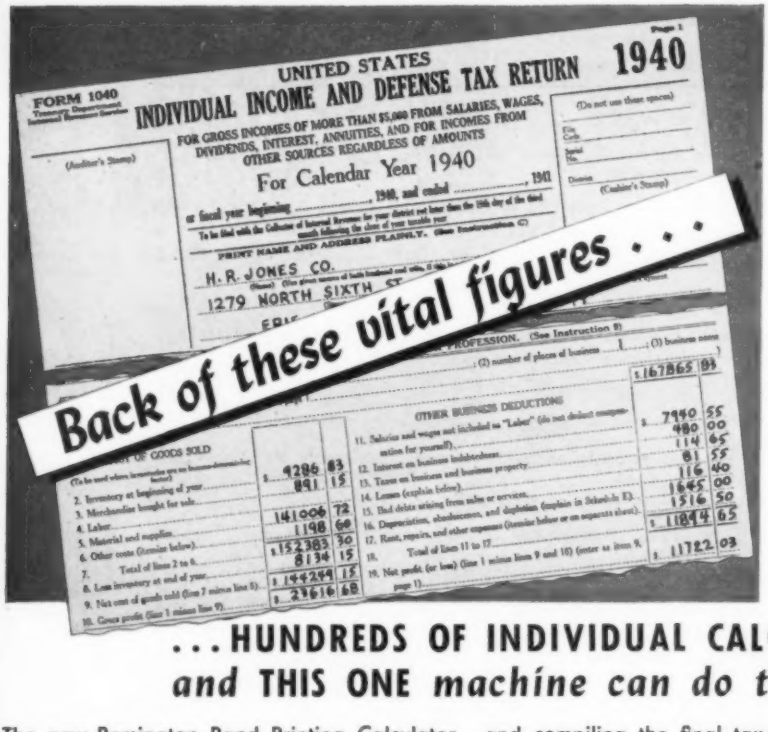
Apportionment of overhead to departments; apportionment of service department costs; distribution of manufacturing expense to production.

PAPER AND PULP

Atwater, J. R. *Cost Accounting Methods in Paper Mills.* Paper Trade Journal. January 2, 1941, pp. 29-34.

ROADS AND HIGHWAYS

Flanagan, F. A. *Modern Highway Cost Accounting.* Roads and Streets. December, 1940, pp. 34-37.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TAXATION

Conlin, John A. *Required Returns and Taxpayers Subject to Provisions of New Excess Profits Tax Act.* Journal of Accountancy. February, 1941, pp. 111-15.

Includes list of types of corporations exempt from excess-profits tax.

Filson, John D. *Amortization of Emergeny Facilities.* Journal of Accountancy. February, 1941, pp. 103-10.

Amortization provisions for defense facilities under the Second Revenue Act of 1940. Accountant's responsibility in reporting on financial statements of corporations which have completed or acquired facilities employed in the national defense effort.

Seghers, Paul D. *Excess Profits Net Income.* Pathfinder Service Bulletin. January, 1941, pp. 1-3.

Illustrations of adjustments to net income in arriving at excess profits net income.

ADDRESSES OF PUBLICATIONS LISTED

American Business, 4660 Ravenswood Ave., Chicago, Ill. (25¢)
Bankers Monthly, 111 Eighth Ave., New York, N. Y. (50¢)
Cost Accountant (The), Linksview, Sandy Lane, Kingswood, Surrey, England.
Cost and Management, 66 King St. E., Hamilton, Ont., Canada. (50¢)
Factory Management & Maintenance, 330 W. 42nd St., New York, N. Y. (35¢)
Journal of Accountancy (The), 13 E. 41st St., New York, N. Y. (35¢)
L. R. B. & M. Journal, Lybrand, Ross Bros. & Montgomery, 90 Broad St., New York, N. Y.
NOMA Forum, c/o W. H. Evans, Secy., Peirce School, Philadelphia, Pa. ($1.25)
New York Certified Public Accountant, 15 E. 41st St., New York, N. Y. (25¢)
Paper Trade Journal, 10 E. 36th St., New York, N. Y. (10¢)
Pathfinder Service Bulletin, 330 N. Los Angeles St., Los Angeles, Calif.
Roads and Streets, Gillette Publishing Co., 400 W. Madison St., Chicago, Ill.

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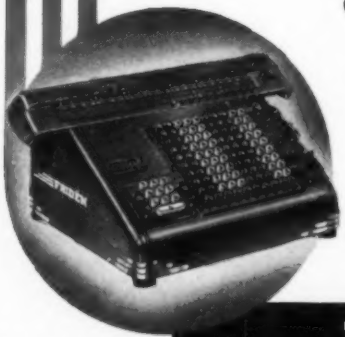

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The Executive Committee has ruled that the names and addresses of all applicants for membership in the Association shall be published in the Bulletins for two weeks in advance of the date on which they are sent to the Director in charge of Membership for approval. The following applications will be forwarded to the Director two weeks from the date of this Bulletin. Comments in regard to these applications which are received from members of the Association during this two weeks' period will be attached to the application before they are forwarded to the Director in charge.

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Ira S. Marcellus, 146 Vley Rd., Scotia, N. Y.

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Edward J. Ament, National Sash Weight Corp., 1701 Wicomico St., Baltimore, Md.

John A. McComas, Underwood Elliott Fisher Co., 107 W. Fayette St., Baltimore, Md.

Boston

Alfred T. Barr, 57 West Greenwood St., Amesbury, Mass.

Buffalo

Andrew W. Austin, Remington Rand, Inc., 465 Washington St., Buffalo, N. Y.

Elmer J. Shaver, Burroughs Adding Machine Co., 775 Main St., Buffalo, N. Y. (Company Transfer from I. Sharpe)

Chicago

Thomas W. Kavanagh, Oliver Farm Equipment Co., 400 West Madison St., Chicago, Ill. (Company Transfer from John M. Groninger)

Ernest F. Martin, Schulze & Burch Biscuit Co., 1133 W. 35th St., Chicago, Ill. (Company Transfer from Harold P. Nelsen)

Cleveland

Charles H. Frank, 841 Union Commerce Bldg., Cleveland, Ohio.

Columbus

Charles F. Beaumont, Underwood Elliott Fisher Co., 54 S. Third St., Columbus, Ohio. (Company Transfer from Kenneth E. Burchfield)

William R. Forsythe, International Business Machines Corp., 362 E. Broad St., Columbus, Ohio. (Company Transfer from John J. Bricker)

Clarence L. Holben, Logan Clay Products Co., Cor. Walnut & Bowen St., Logan, Ohio.

Howard F. Robinson, American Art Works, Coshocton, Ohio.

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Clarence H. Freeark, Fraternity Management Inc., 1224 Penn Ave., Boulder, Colo.
Van W. Gladden, Underwood Elliott Fisher Co., 1729 Welton St., Denver, Colo.

Fort Wayne

Paul M. Deal, 319 E. Creighton Ave., Fort Wayne, Ind.
Huber L. Kaufman, General Tire & Rubber Co., Wabash, Ind.

Greenwich

Arthur V. Anderson, Laminated Shim Co., Inc., Union St., Glenbrook, Conn.
Harry Brock, Brock Press Inc., 39 Atlantic St., Stamford, Conn.
J. D. Yeomans, Northam Warren Corp., Stamford, Conn.

Hartford

C. Sanford Macomber, 112 So. Whitney St., Hartford, Conn. (Transfer from Junior to Full Membership)

Houston

Raleigh C. Hall, International Business Machines Corp., 1620 Main St., Houston, Texas. (Company Transfer from George E. Luck)

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John Beety, R-B-M Mfg. Co., Logansport, Ind. (Company Transfer from Frank S. Mertes)

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Clair E. Johnson, 19 Midgley St., Jamestown, N. Y.
William A. Taylor, Jamestown Table Co., 145 Fairmount Ave., Jamestown, N. Y.

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Alex Mesko, Springtown, Pa.

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Ray Bearly, Columbia Pictures Corp., 1438 N. Gower St., Hollywood, Calif.

Louisville

Chas. J. Hauck, General Box Co., 816 S. 16th St., Louisville, Ky.

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Lawrence A. Hegenbarth, North Star Woolen Mill Co., 218 S. Second St., Minneapolis, Minn.

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Fred K. Ward, Ditto Inc., 103 4th Ave., Peoria, Ill.

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Gerald L. Dunbar, Columbia Mills., 1207 Wheeler, Saginaw, Mich. (Company Transfer from C. F. Haeger)

Emanuel E. Speckhard, Michigan, National Bank, 501 Lapeer Ave., Saginaw, Mich.

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Asaph G. Waterman, Pass & Seymour Inc., Solvay Sta., Syracuse, N. Y.

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Paul C. Houser, Burroughs Adding Machine Co., 316 Brady St., Davenport, Iowa.

John E. Jayne, Business Service Co., 921 Davenport Bank Bldg., Davenport, Iowa.

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